

CASE STUDY SHANE STEEL PROCESSING, INC.

Shane Steel Processing, Inc. a privately owned company, has been straightening, shearing and precision grinding steel bar stock for industrial applications since 1949. Over these years they have realized the importance of quality and continuous improvement and have grown to the point that they now process about 100,000 tons/year with about 75 employees operating 2 shifts. The bar stock ranges from 3/8 to 4 inches in diameter, up to 24 feet long.

While working toward QS 9000 certification, Shane management invited a team from the Retired Engineer Technical Assistance Program (RETAP) to make a waste reduction assessment at their 80,000 square foot facility consisting of 3 buildings on 11 acres in Fraser, Michigan. This service, offered by the Department of Environmental Quality, is nonregulatory, confidential and free. The expectation was that the RETAP assessment team would make suggestions for further improvement. As Paul Westerfield, Shane's Quality Manager said, "fresh eyes can sometimes see things that had not been noticed". Even though the assessment results are confidential, Shane was so pleased with the results that they allowed us to publish this case study.

Depending on the process routing, bar stock is either non-destructively (eddy current) tested, machine straightened, sheared to length or centerless ground. Statistical Process control (SPC) is used throughout this operation. A central system removes grinding fines from the aqueous-based synthetic grinding fluid. The fluid from each grinding station is returned through a closed pipe system to a gravity settler. Underflow passes through hydrocyclones to thicken the sludge. Clean fluid is recycled. Dewatered fines are screw conveyed to portable drainage containers to recover more grinding fluid, then transferred to large roll-off boxes which are sent to a landfill via a commercial waste hauler. Make-up oil is received in portable bulk containers and added by operators as needed.

Detroit Edison supplies power to Shane-owned transformers for the entire operation. City water is used to make up evaporation losses and all buildings are connected to a POTW sewer.

The RETAP team made 13 recommendations for Shane's consideration. The recommendations ranged from ways to greatly reduce energy costs to ideas for improving recycling and reclaiming trash. Some of the recommendations were already being addressed by efforts to reach QS 9000 certification and some were entirely new to Shane. Some of the more pertinent actions taken by Shane are as follows.

Energy Usage

Shane is working with an electrical contractor to put capacitors across the loads to improve the power factor in their operation. The expectation is that this will reduce the cost of electrical power by up to \$40,000/year and result in less pollutant going into the atmosphere because of the lower power demand.

In addition, they are looking for ways to move work to off-peak hours to level out power requirements and reduce demand charges, although this is difficult to do with their operation.

Shane is also exploring the EPA Green Light Program for more energy and cost saving ideas.

They are committed to exploring insulation options to reduce heat loss, prior to the next interior paint project.

Preventative Maintenance

Shane has implemented a preventative and predictive maintenance program. This should improve the up time of the machines, reduce oil and air leaks and improve housekeeping.

One of the elements of the program is to add dye to spindle oil so leaks will be more visible and can be repaired quickly.

In addition, housekeeping standards have been documented and are monitored on a weekly basis.

Forklifts

Currently, Shane is moving material with Diesel powered forklifts. In June, when the lease is up on these vehicles, they will investigate the possibilities of converting to propane powered forklifts to reduce costs and improve indoor air quality.

Oils and water usage

One of the things noticed during the waste reduction assessment was a sharp rise in water usage in one of the buildings. Shane has implemented a new method of monitoring and documenting oil and water usage so that any variance will be noticed immediately and action taken to correct a problem if necessary. It is expected that oil and water usage costs will be reduced by \$5,000 annually.

Recycling Grinding Fines

Although Shane has been working with a source to recycle grinding fines for years, that company ceased operation last year. They are now working with a different company and expect to save \$30,000 annually with the new company as well as reduce the amount of fines going to landfill.

Wheel stubs

Another recommendation of the RETAP team was to recycle the unused portion of the grinding wheels after use. Currently these are sent to landfill with other trash. They are in the process of setting up a program to have these segregated and hauled away to have the remaining abrasive recycled.

Shane Steel Processing, Inc. is continuing their efforts to be a responsible, cost efficient corporate citizen. They are taking action that will benefit the company and the employees as well as the environment. Other actions will be taken in the future, as time and resources become available. They are to be commended for their diligent efforts to reduce waste of any kind.

Permission to publish as a case study granted _____
Paul Westerfield-Quality Manager